CFS-930L

SERVICE MANUAL

AEP Model
UK Model
ITALY Model

SPECIFICATIONS

Tuner frequency range

	FM	MW	LW	SW
AEP, G-AEP, UK model	87.6—107 MHz	530—1605 kHz	150—285 kHz	5.95—18 MHz
ITALY model	87.5—108 MHz	526.5—1606.5 kHz	148.5—283.5 kHz	

Antennas: FM/SW: Telescopic
MW/LW: Built-in ferrite bar

Frequency response: 80—8,000 Hz

Speakers: Approx. 10 cm (4 in.) dia. full-range × 2

Outputs: Headphones jack (stereo minijack)
for 8—300 ohm impedance headphones

Peak music power output: 10 W (5 W + 5 W)

Power requirements: 9 V DC, six R20 (size D) batteries
DC IN 9 V jack accepts:
AC power adaptor (supplied)

	Requirements (supplied power adaptor)
AEP, G-AEP, ITALY model	220 V AC, 50 Hz
UK model	240 V AC, 50 Hz

DC IN 9 V jack also accepts:
DCC-120 car battery cord (optional)
for use with 12 V car battery.

Battery life

Batteries	FM recording
Sony SUM-1 (NS)	approx. 17 hours
Sony AM1 alkaline	approx. 30 hours

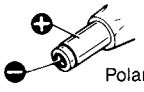
Model Name Using Similar Mechanism	CFS-950
Tape Transport Mechanism Type	MF-950-78D

0 dB = 0.775 V (AF)

Dimensions: Approx. 434 × 142 × 133 mm (w/h/d)
(17-1/8 × 5-5/8 × 5-1/4 inches)
not incl. handle, projecting parts and controls.

Weight: Approx. 2.9 kg (6 lb 7 oz) incl. batteries

Note
If a car battery cord not manufactured by Sony is used, a fuse must be installed in the battery cord and the polarity of the plug must be as illustrated.



Polarity of the Sony plug

MICROFILM

FM/MW/LW/SW
STEREO CASSETTE-CORDER

SONY®

TC

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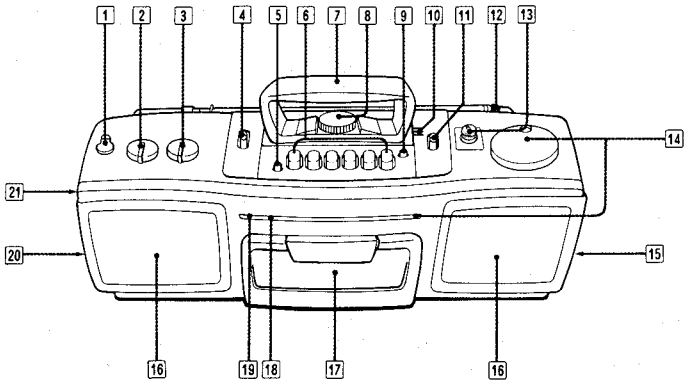
PARTS IDENTIFICATION



[1] **PHONES jack (stereo minijack)**
[2] **VOLUME control**
[3] **TONE control**
[4] **FUNCTION selector (RADIO / TAPE (RADIO OFF))**
Switch the unit to TAPE (RADIO OFF) when not in use.
[5] **DIR (direction)**
Changes tape direction (playback only).

[6] **Tape operation buttons**
II PAUSE
◄◄ Leftward fast-winding
►► Rightward fast-winding
(Note: ◄◄ and ►► do NOT release automatically at tape end.)
◄ PLAY
● REC—pressing this will automatically depress ◄ PLAY.
■ STOP/EJECT
[7] **Handle**
[8] **Handle attachment knob**
[9] **REC MUTE button**
Use to add a silent space during recording.
[10] **MIC (built-in microphone)**
[11] **BAND selector**
[12] **Telescopic antenna**
[13] **FINE TUNING knob**
[14] **TUNING knob and dial scale**
[15] **Side handle mount**
[16] **Speaker**
[17] **Cassette holder**
[18] **FWD/REV (tape direction) indicator**
Shows left-winding (when left indicator lit) or right-winding (when right lamp lit) tape transport.
[19] **OPR/BATT indicator**
Shows unit is in use. When indicator glows faintly, change all batteries.
[20] **DC IN 9V jack**
[21] **ISS/FM MODE switch**

SECTION 1
ADJUSTMENTS

1-1. MECHANICAL ADJUSTMENTS

PRECAUTION

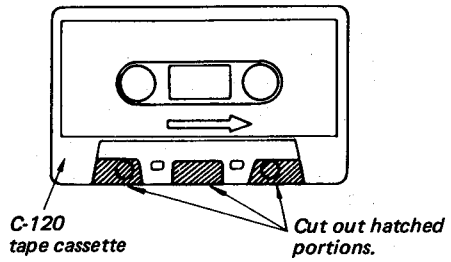
1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

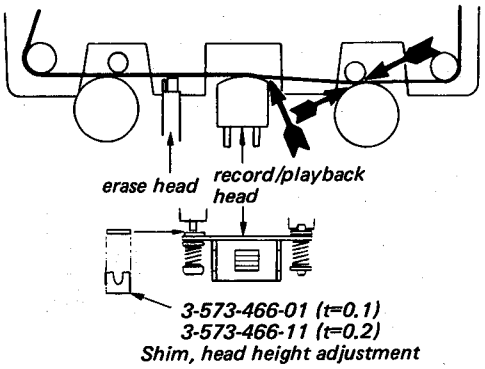
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
6. The adjustments should be performed in the order given in this service manual.
   The adjustments should be performed for both L-CH and R-CH.

Head Height Adjustment

1. Prepare an adjustment cassette as shown below.



2. In record mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions of arrow.

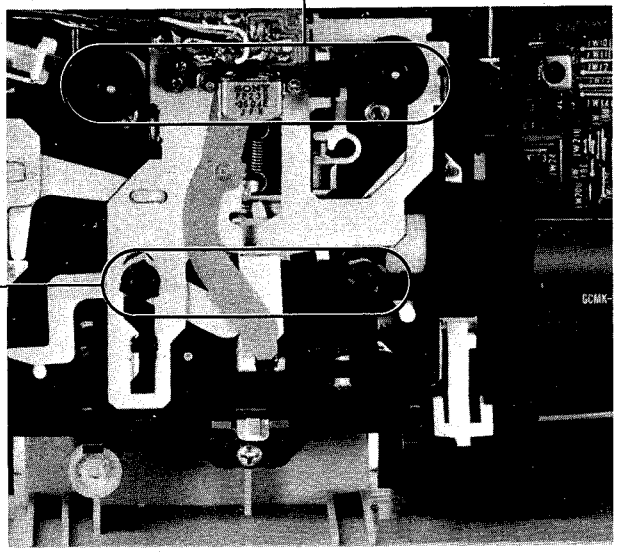


Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	28 – 52 g•cm (0.39 – 0.72 oz•inch)
FWD Back Tension		2.5 – 5.5 g•cm (0.04 – 0.07 oz•inch)
REV	CQ-102RB	28 – 52 g•cm (0.39 – 0.72 oz•inch)
REV Back Tension		2.5 – 5.5 g•cm (0.04 – 0.07 oz•inch)
FF	CQ-201B	more than 95 g•cm (more than 1.33 oz•inch)
REW		85 – 145 g•cm (1.18 – 2.01 oz•inch)

Tape Tension Measurement

Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 120 g (more than 1.67 oz•inch)
REV	CQ-403R	



1-2. ELECTRICAL ADJUSTMENTS

CASSETTE SECTION

Note: The adjustment should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.

  FUNCTION: TAPE RADIO OFF
  VOLUME: mechanical mid
  TONE: HIGH

- Standard Input Level

input terminal	EXT MIC
source impedance	300 Ω
input level	0.77 mV (-60 dB)

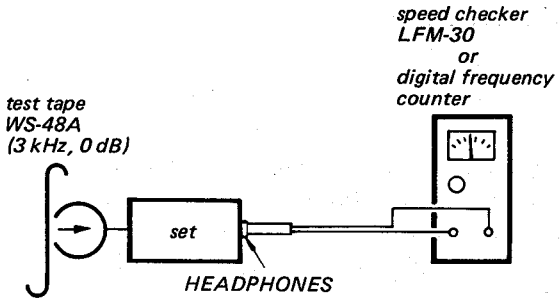
- Standard Output Level

output terminal	PHONES	speaker
load impedance	32 Ω	3.2 Ω
output level	0.25 V (-10 dB)	0.775 V (0 dB)

Tape Speed Adjustment

Procedure:

Mode: FWD playback

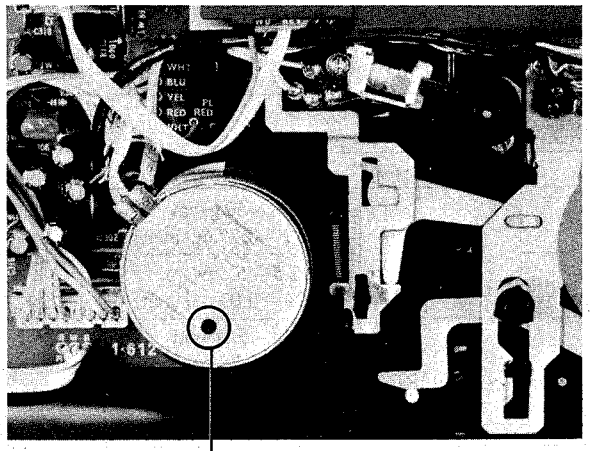


Specification:

Speed checker	Digital frequency counter
-2.5 to +3%	2,925 to 3,090 Hz

Frequency difference between the beginning and the end of the tape should be within 1% (30Hz).
Also in REV playback mode, confirm to obtain the above specification.

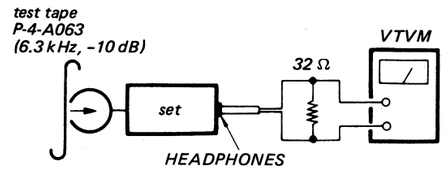
Adjustment Location:



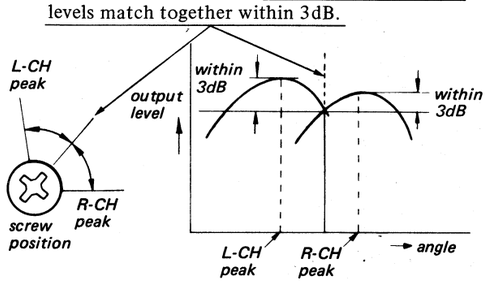
Record/playback Head Azimuth Adjustment

Procedure:

1. Mode: FWD playback



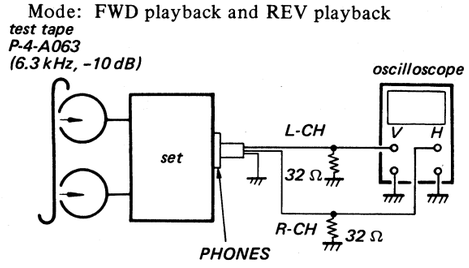
2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 3dB.



Also in REV playback mode, perform the above adjustment. After the adjustment, comfirm to obtain the specification in FWD playback mode again.

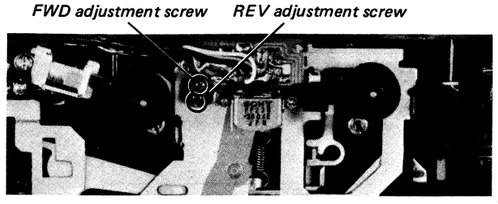
3. Phase Check

Mode: FWD playback and REV playback



Screen pattern				
in phase	45°	90°	135°	180°
good			wrong	

Adjustment Location:



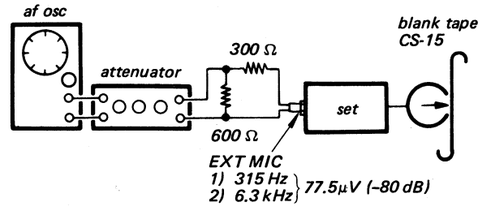
Record Bias Adjustment

Setting:

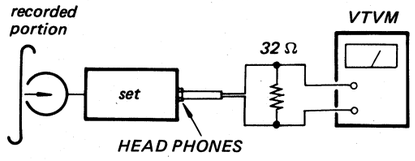
TONE control: MAX
ISS switch: 1

Procedure:

1. Mode: record



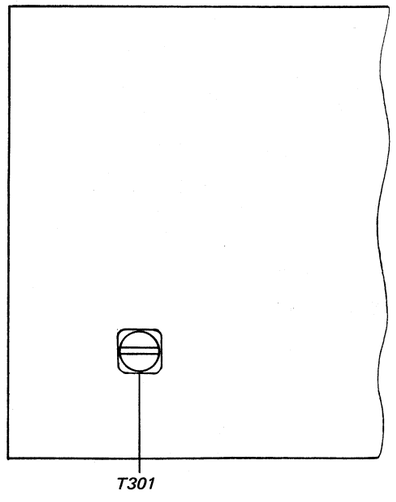
2. Mode: playback



3. Confirm that the 6.3 kHz playback signal level is 0 ± 3 dB relative to the 315 Hz signal level. If necessary, adjust T301 and repeat steps 1–3.

Adjustment Location:

— main board —



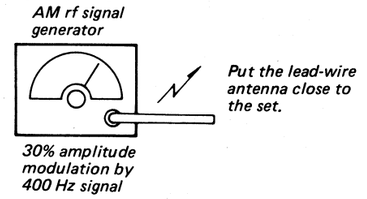
RADIO SECTION

- **AM Section**

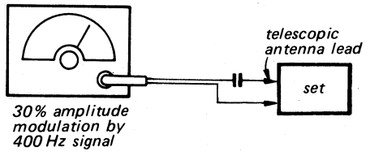
Setting:

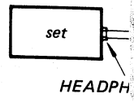
FUNCTION switch: MW, LW, SW

[MW, LW]



[SW]





• Repeat the procedu
times, and the freq
adjustments should
mer capacitors.

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
518kHz 516kHz (ITALY)	L11
1,680kHz 1,630kHz (ITALY)	CT4

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
145kHz 140kHz (ITALY)	295kHz 295kHz (ITALY)
L12	CT8

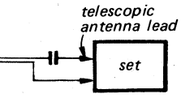
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
1,400kHz	CT3
620kHz	L9-1

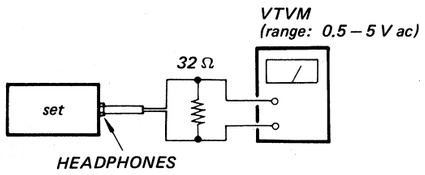
MW IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
455kHz	T3

CT6	L9-2
260kHz	160kHz
Adjust for a maximum reading on VTVM.	
LW TRACKING ADJUSTMENT	

MW, LW, SW

Put the lead-wire antenna close to the set.





- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
145kHz 140kHz (ITALY)	295kHz 295kHz (ITALY)
L12	CT8

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L10	5.75MHz
CT7	18.4MHz 18.5MHz (ITALY)

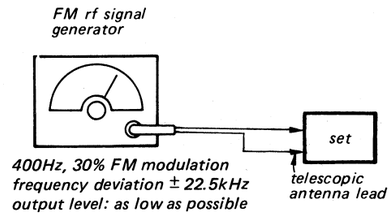
SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT5	18.4MHz 18.5MHz (ITALY)
L8	5.75MHz

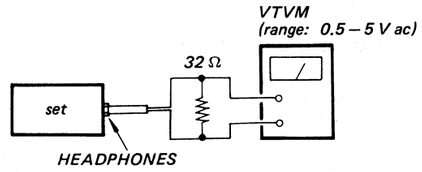
CT6	L9-2
260kHz	160kHz
Adjust for a maximum reading on VTVM.	
LW TRACKING ADJUSTMENT	

• FM Section

Setting:

FUNCTION switch: FM

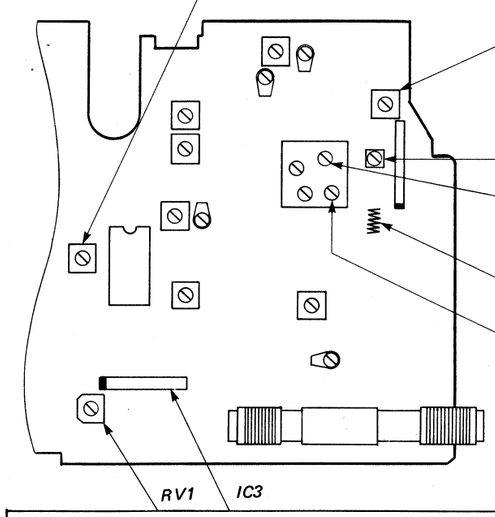




- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM IF ADJUSTMENT (2)
Minimum distortion
10.7MHz
T2

FM IF ADJUSTMENT (1)
Adjust for a maximum reading on VTVM.
10.7MHz
T1

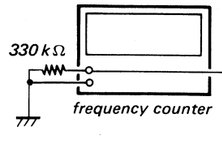


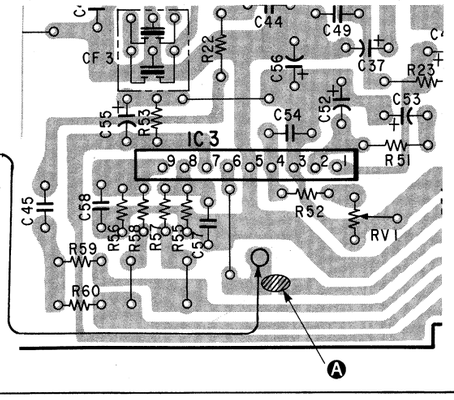
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	87.1MHz 87.35MHz (G-AEP, ITALY)
CT2	107.8MHz 108.3MHz (ITALY)

L1	87.1MHz 87.35MHz (G-AEP, ITALY)
CT1	107.8MHz 108.3MHz (ITALY)
Adjust for a maximum reading on VTVM.	
FM TRACKING ADJUSTMENT	

VCO Adjustment

Procedure:





1. Cut the pattern Ⓐ .
2. Adjust RV1 for 38 kHz ± 0.2 kHz on the counter.
3. After the adjustment, solder the pattern Ⓐ .

SECTION 2
DIAGRAMS

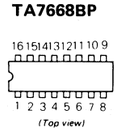
● Semiconductor Location

Ref. No.	Location
D1	F-5
D2	F-3
D4	E-3
D301	F-12
D302	F-10
D303	B-3
D304	B-3
D305	B-3
IC1	F-2
IC2	G-5
IC3	H-5
IC301	F-8
IC302	E-13
IC303	F-10
Q101	D-12
Q201	D-13
Q301	E-8
Q302	G-13
Q303	G-14
Q304	E-12

● Semiconductor Lead Layouts

LA2010
TA7343AP
TA7358AP

LA1260S
TA7668BP

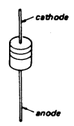


TA7282AP

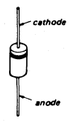
2SC634SP

2SA733-Q
2SC1815-GR
2SC2001-L

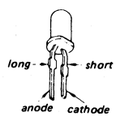
1SS119
RD6.2E-B2



1S2687CS

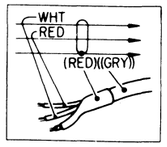


TLR124



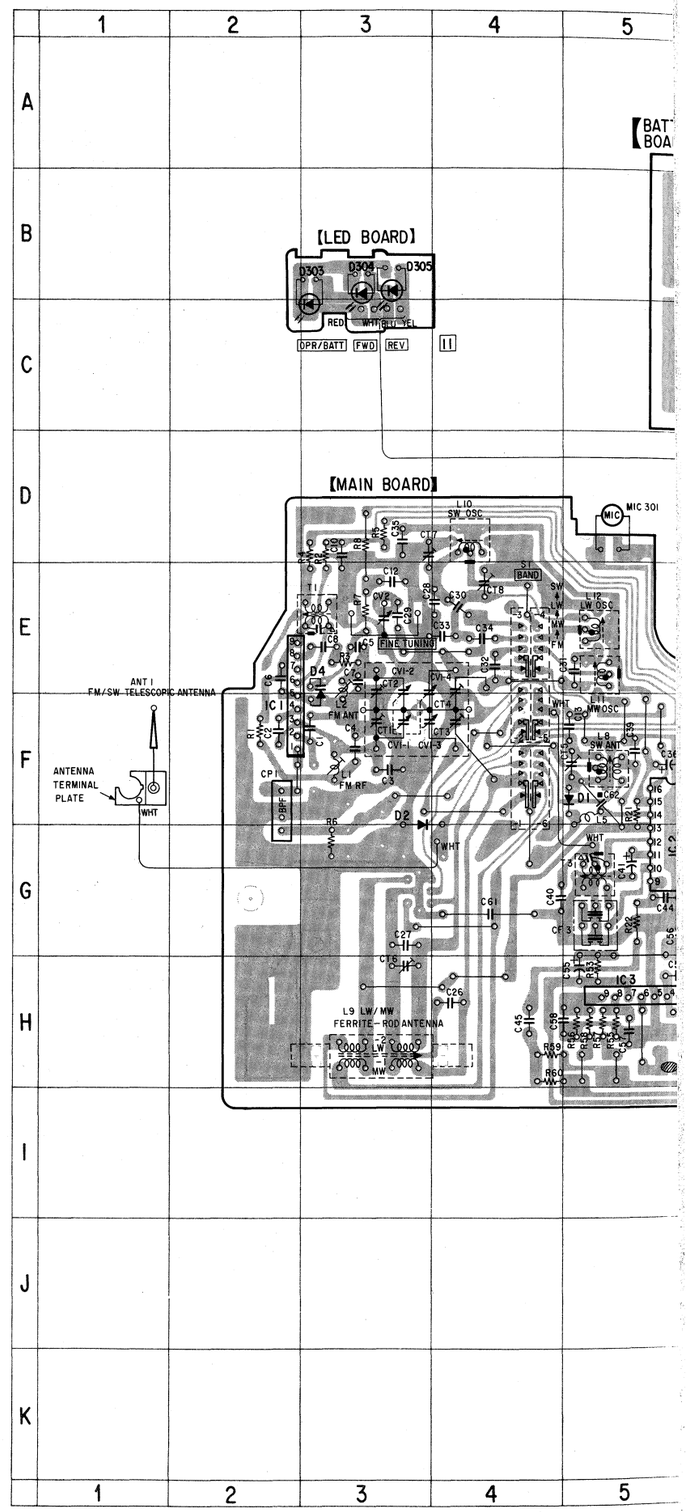
Note:

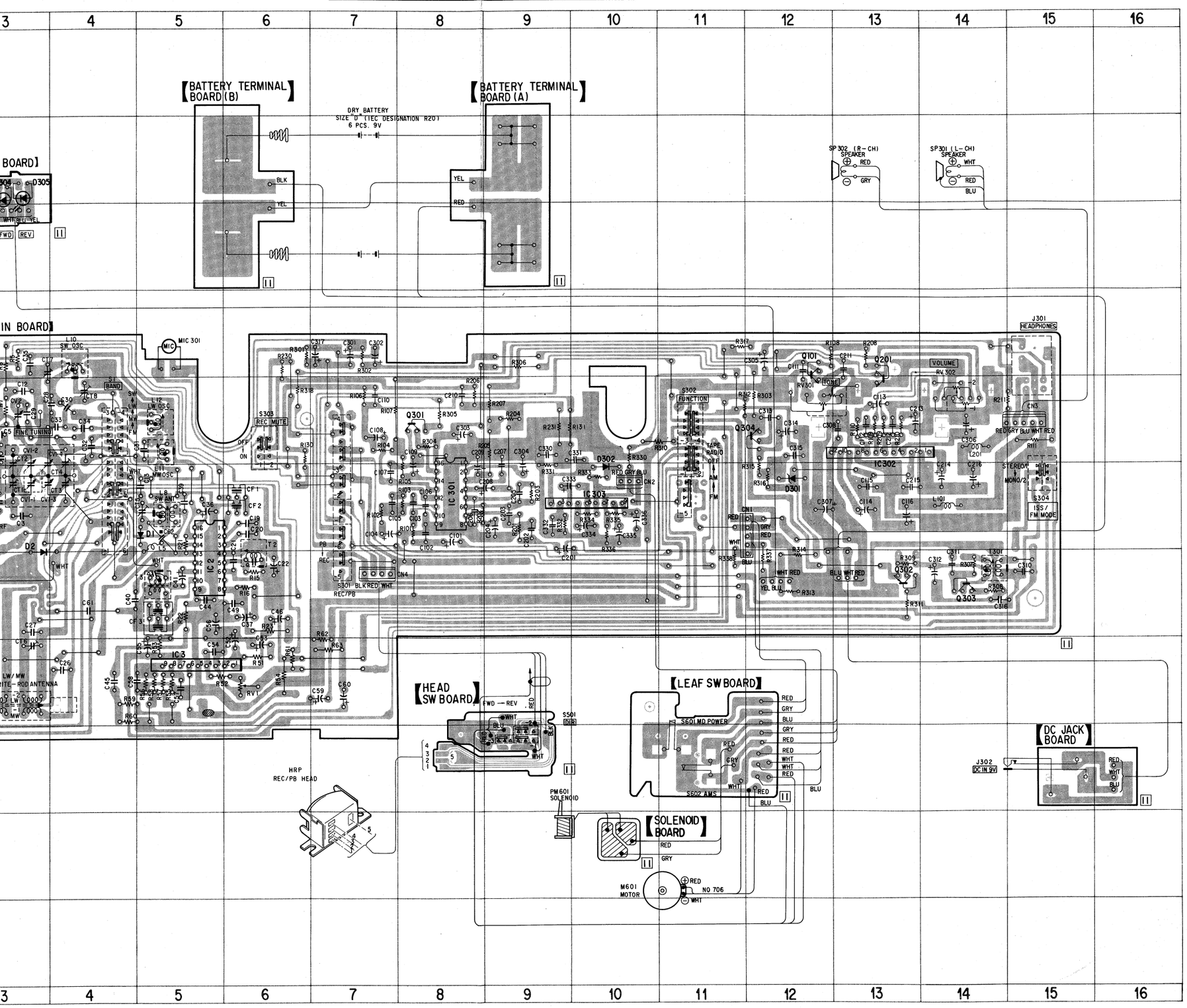
- Color code of sleeving over the end of the jacket.



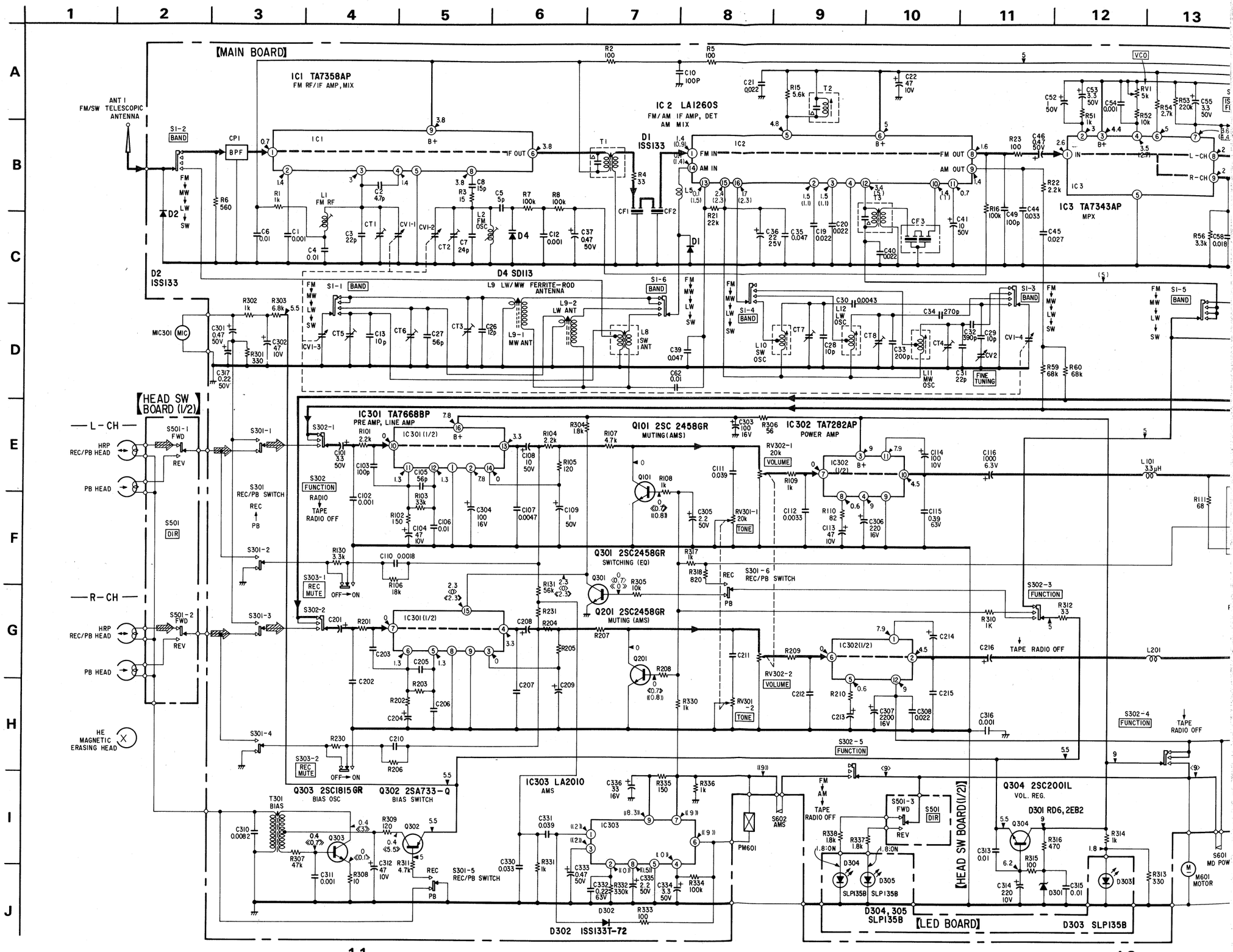
- ○— : parts extracted from the component side.
- ■ : part mounted on the conductor side.
- [ ]— : indicates side identified with part number.

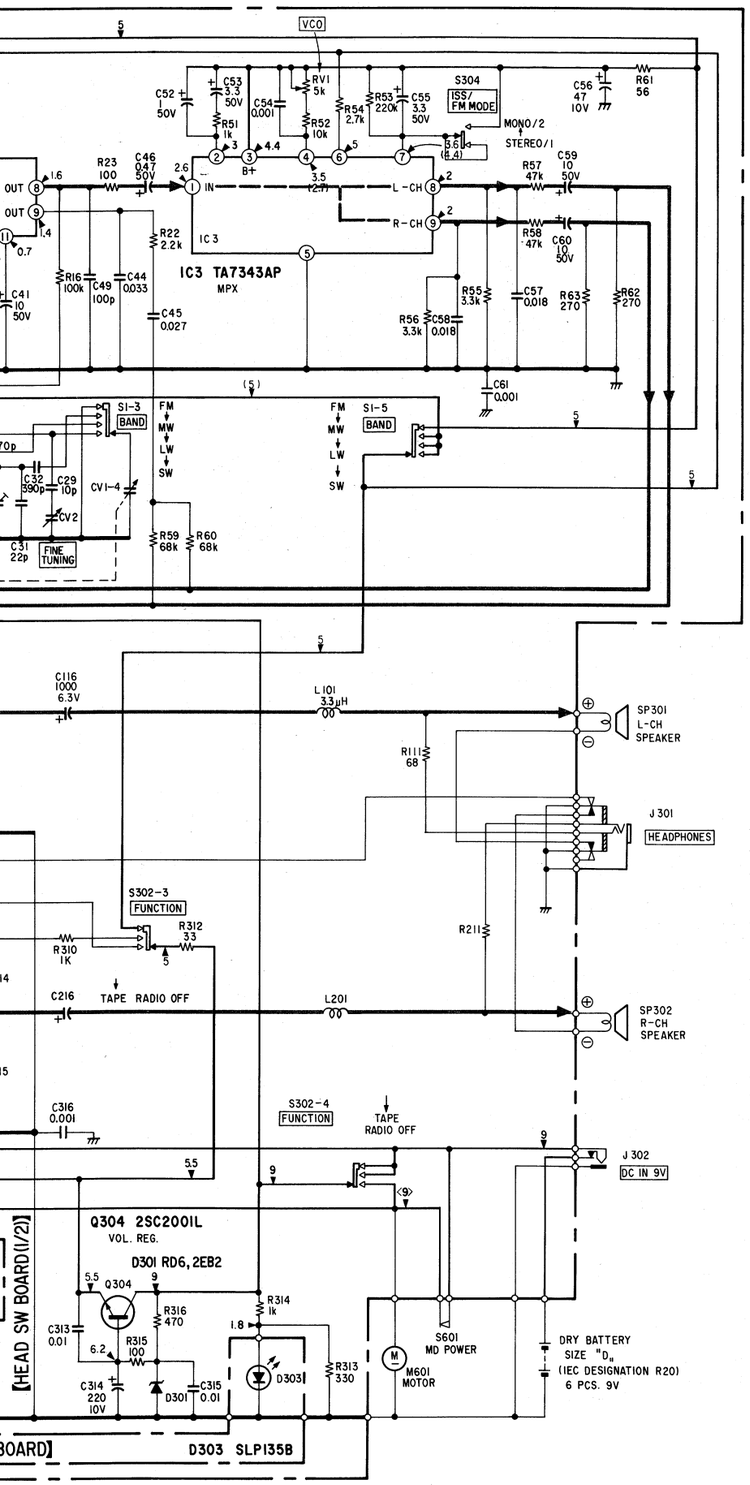
2-1. MOUNTING DIAGRAM




3
4
5
6
7
8
9
10
11
12
13
14
15
16
【BATTERY TERMINAL BOARD(B)】
【BATTERY TERMINAL BOARD(A)】
DRY BATTERY
SIZE "D" (IEC DESIGNATION R20)
6 PCS. 9V
BLK
YEL
YEL
RED
SP302 (R-CH) SPEAKER
RED
GRY
SP301 (L-CH) SPEAKER
WHT
RED
BLU
J301 HEADPHONES
MIC 301
L10 SW OSC
L12 LW OSC
L11 MW OSC
L8 SW ANT
L9 LW/MW FERRITE-ROD ANTENNA
S1 BAND
FINE TUNING
S303 REC MUTE
OFF
ON
S301 REC/PB
BLK RED WHT
REC
PB
HRP REC/PB HEAD
IC301
IC302
IC303
IC2
IC3
Q101
Q201
Q301
Q302
Q303
Q304
D1
D2
D302
D305
VOLUME RV302
TONE RV301
S302 FUNCTION
TAPE
RADIO
OFF
AM
FM
CN1
CN2
CN3
CN4
CN5
RED GRY BLU WHT RED
STEREO/MONO/2
S304 ISS/FM MODE
【HEAD SW BOARD】
FWD — REV
S501 DIR
【LEAF SW BOARD】
S601 MD POWER
S602 AMS
PM601 SOLENOID
【SOLENOID BOARD】
M601 MOTOR
NO 706
【DC JACK BOARD】
J302 DC IN 9V

2-2. SCHEMATIC DIAGRAM





—12—

Note:

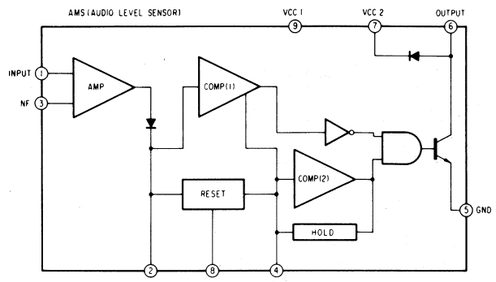
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- △ : internal component.
- Switch

Ref. No.	Switch	Position
S1	BAND	FM
S301	REC/PB	PB
S302	FUNCTION	RADIO
S303	REC MUTE	OFF
S304	ISS/FM MODE	1/STEREO
S501	DIR	FWD
S601	MD POWER	OFF
S602	AMS	OFF

- ▬▶ : FM signal path
- ▨ : PLAYBACK signal path
- ▬ : B+ bus.
- ▭ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).
  no mark : FM
  ( ) : AM
  < > : PLAYBACK
  (( )) : AMS
- Voltage variations may be noted due to normal production tolerances.

• IC BLOCK DIAGRAMS

LA2010



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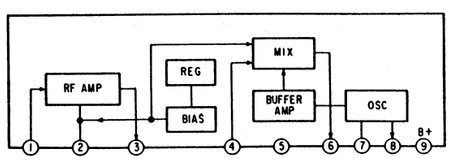
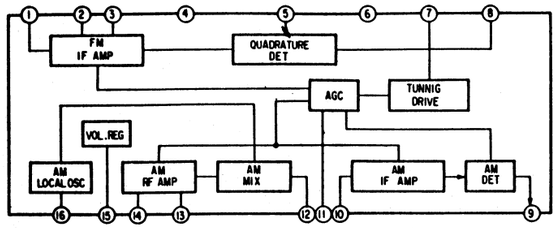


LA1260S



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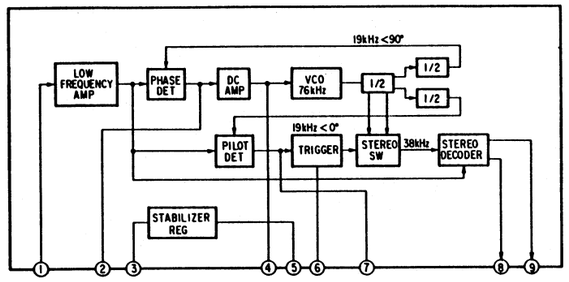
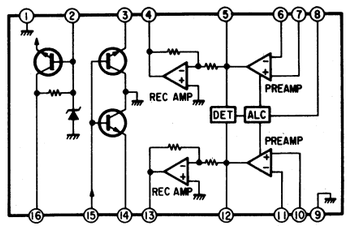
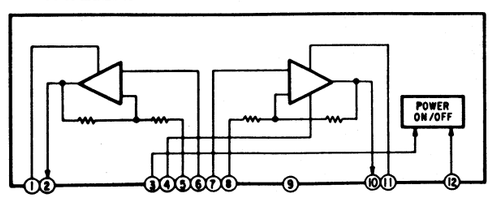


TA7668BP



TA7282AP

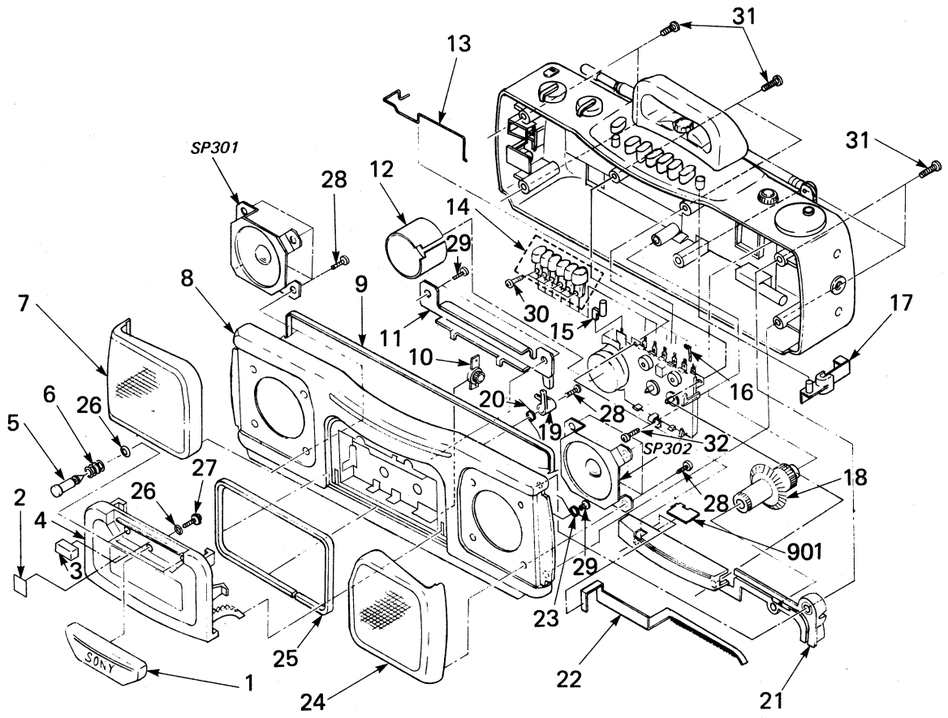


—13—

SECTION 3
EXPLODED VIEWS AND PARTS LIST

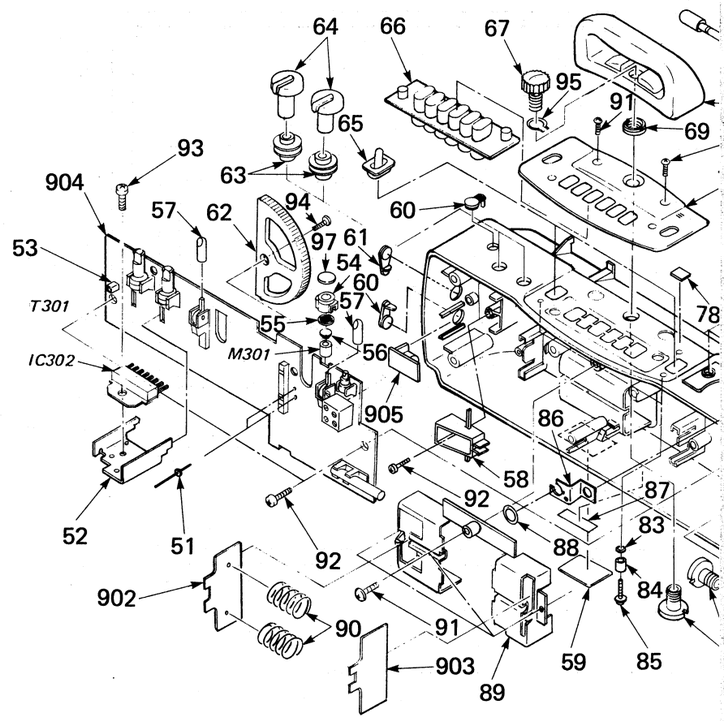
NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color Indication of Appearance Parts
  Example: (RED) ..... KNOB, BALANCE (WHITE)
  (RED) = Cabinet's Color; (WHITE) = Parts' Color

3-1.



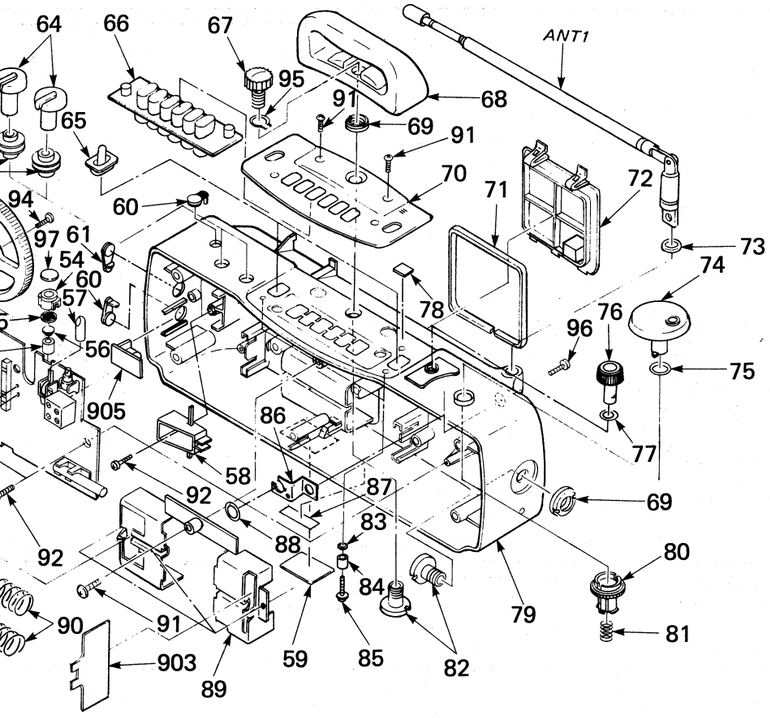
No.	Part No.	Description	Remarks
1	3-340-711-01	COVER, LOCK	
2	3-703-710-01	STICKER, SONY SYMBOL (12)	
3	*4-604-357-01	CUSHION (H18), RUBBER	
4	X-3340-721-1	HOLDER ASSY, CASSETTE	
5	3-340-729-01	SHAFT, LOCK	
6	3-340-733-01	SPRING	
7	X-3340-702-1	ESCUTCHEON (LEFT) ASSY, SP	
8	X-3340-716-1	(AEP, G-AEP, UK)...CABINET ASSY, FRONT	
	X-3340-719-1	(ITALY).....CABINET ASSY, FRONT	
9	3-340-722-01	PACKING, CABINET	
10	3-319-224-31	DAMPER, SMALL	
11	*X-3340-703-1	PLATE ASSY, LOCK	
12	*3-319-940-01	PLATE, SHIELD, MOTOR	
13	*3-321-514-01	LEVER, SWITCH, POWER	
14	3-340-710-01	BUTTON BLOCK, MD	
15	3-340-740-01	KNOB, DIR	
16	3-340-726-01	SPRING	
17	3-340-741-01	KNOB, REC MUTE	
18	3-326-321-01	GEAR, CHANGE	
19	*3-326-328-01	LEVER, CHANGE	
20	3-326-364-01	SPRING	
21	3-340-707-01	CHASSIS	
22	3-340-713-01	RACK, POINTER	
23	3-340-732-01	SPRING	
24	X-3340-701-1	ESCUTCHEON (RIGHT) ASSY, SP	
25	3-326-367-22	PACKING (D), HOLDER (FRONT)	
26	7-624-209-00	O RING, P-5	
27	7-685-134-19	SCREW (+ PTPWH) (2.6X8)	
28	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
29	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
30	7-621-773-86	SCREW +PTT 2.6X4 (S)	
31	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
32	7-685-649-79	SCREW +BVTP 3X14 TYPE2 IT-3	
901	*1-623-492-11	PC BOARD, LED	
SP301	1-503-823-11	SPEAKER	
SP302	1-503-823-11	SPEAKER	

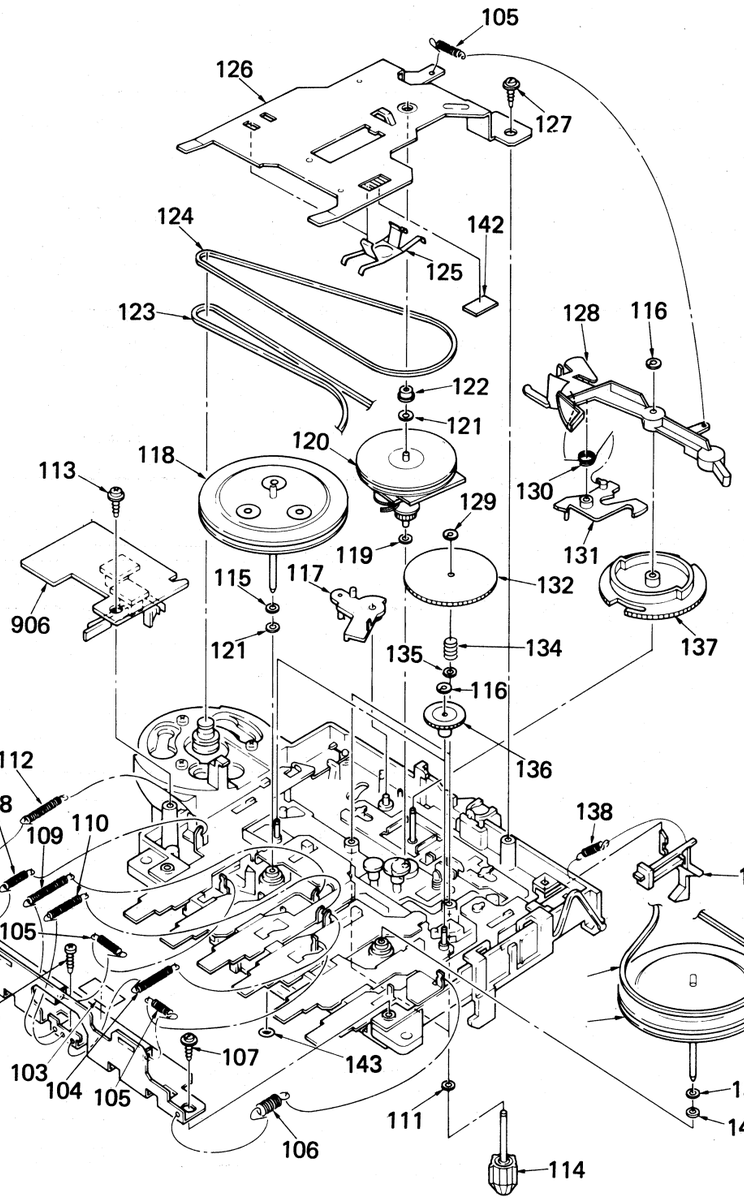
3-2.



No.	Part No.	Description	Remarks
51	*3-847-723-00	PIN, LEAD	
52	*3-340-752-01	HEAT SINK	
53	*3-887-524-00	PLATE, SHIELD	
54	3-319-915-01	CUSHION, MICROPHONE	
55	3-326-355-01	SHEET, MIC	
56	3-323-837-01	CUSHION (E)	
57	3-326-315-01	KNOB, SELECTION	
58	3-340-715-01	KNOB, SLIDE	
59	3-340-747-01	(ITALY)...LABEL, MODEL NUMBER	
60	3-326-303-01	PACKING, JACK	
61	3-340-720-01	PACKING, SLIDE KNOB	
62	*3-341-534-01	DRUM, DIAL	
63	3-326-322-01	PACKING, VOL	
64	3-326-304-21	KNOB, VOL	
65	3-340-719-01	PACKING, LEVER SWITCH	
66	3-340-709-01	PACKING, MD BUTTON	
67	3-340-712-01	KNOB, HANDLE	
68	3-340-704-01	HANDLE	
69	3-340-728-01	NUT, RING	
70	3-340-705-31	PANEL, CONTROL	
71	3-326-367-32	PACKING (D), HOLDER (REAR)	
72	3-340-706-01	LID, BATTERY CASE	
73	3-341-513-01	RING	
74	3-326-305-21	KNOB, TUNING	
75	4-870-945-00	RING (P9), O	
76	3-340-721-01	KNOB, FINE TUNING	
77	4-846-520-00	RING, (TRIP)	
78	3-341-527-01	SPACER (II), MICROPHONE	
79	3-340-739-31		
80	3-326-319-01		
81	3-326-359-01		
82	3-340-727-01		
83	3-341-516-01		
84	3-340-750-01		
85	3-340-751-01		
86	*3-341-512-01		
87	3-764-430-01		
88	3-341-540-01		
89	3-340-708-01		
90	3-340-731-01		
91	7-685-648-79		
92	7-685-647-79		
93	7-685-646-79		
94	7-621-259-35		
95	7-624-198-01		
96	7-682-549-04		
97	3-341-514-01		
902	*1-623-489-11		
903	*1-623-490-11		
904	*A-3260-631-A		
905	*1-623-491-11		
ANT1	1-501-338-11		
IC302	8-759-205-82		
MIC301	8-814-186-00		
T301	1-433-268-00		

3-3.

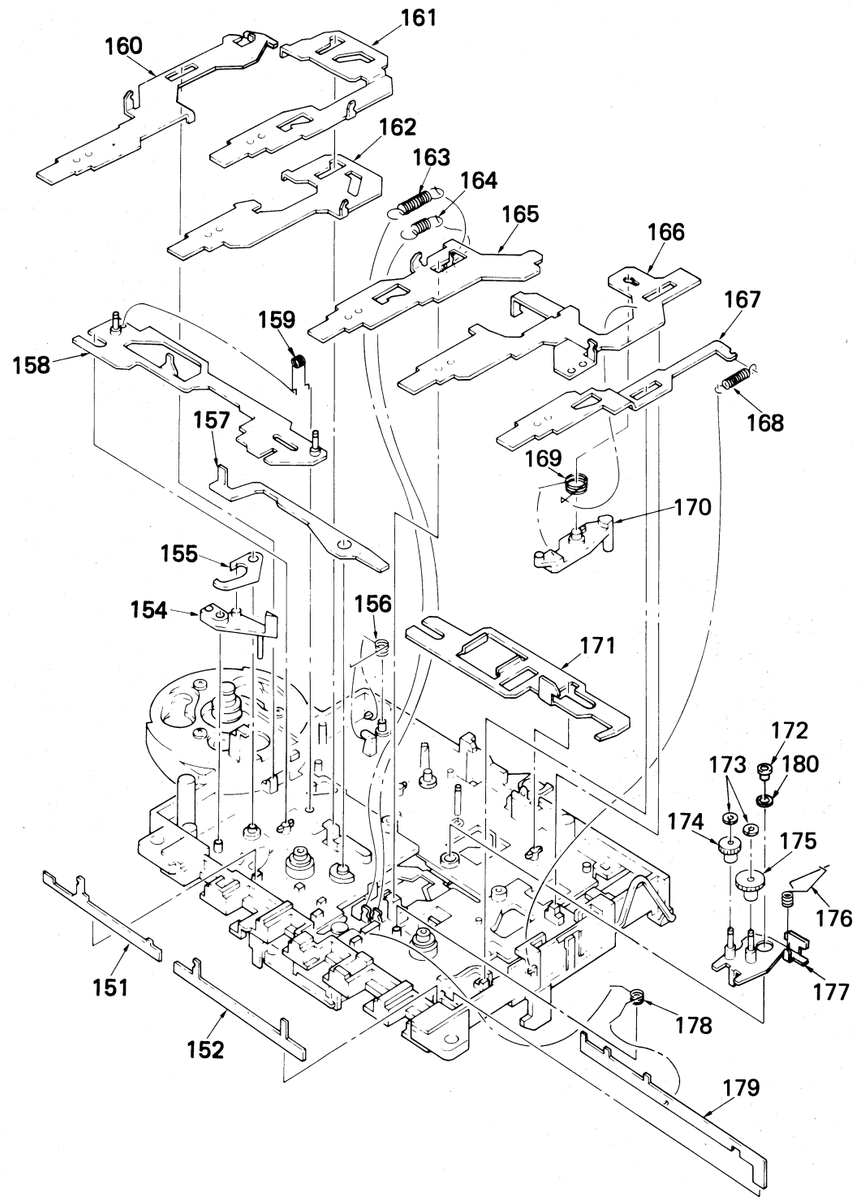




Remarks	No.	Part No.	Description	Remarks
	79	3-340-739-31	CABINET, REAR	
	80	3-326-319-01	GEAR, TUNING	
	81	3-326-359-01	SPRING (TU)	
	82	3-340-727-01	HOLDER, HANDLE	
	83	3-341-516-01	SPACER (I), CABINET	
	84	3-340-750-01	COLLAR, SPACER	
	85	3-340-751-01	SCREW (M3X5), TAPPING	
	86	*3-341-512-01	TERMINA , ANTENNA	
	87	3-764-430-01	INSTRUCTION DBP CAUTION	
	88	3-341-540-01	SPACER, TU	
	89	3-340-708-01	CASE, BATTERY	
	90	3-340-731-01	TERMINAL, MINUS	
	91	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
	92	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	
	93	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
	94	7-621-259-35	SCREW +P 2.6X5	
	95	7-624-198-01	STOP RING 8, TYPE C	
	96	7-682-549-04	SCREW +B 3X10	
	97	3-341-514-01	SPACER, MICROPHONE	
	902	*1-623-489-11	PC BOARD, BATTERY TERMINAL (A)	
	903	*1-623-490-11	PC BOARD, BATTERY TERMINAL (B)	
	904	*A-3260-631-A	MOUNTED PCB, MAIN	
	905	*1-623-491-11	PC BOARD, DC JACK	
	ANT1	1-501-338-11	ANTENNA, TELESCOPIC	
	IC302	8-759-205-82	IC TA7282AP	
	MIC301	8-814-186-00	MICROPHONE UNIT (C-1014)	
	T301	1-433-268-00	TRANSFORMER, BIAS OSCILLATOR	

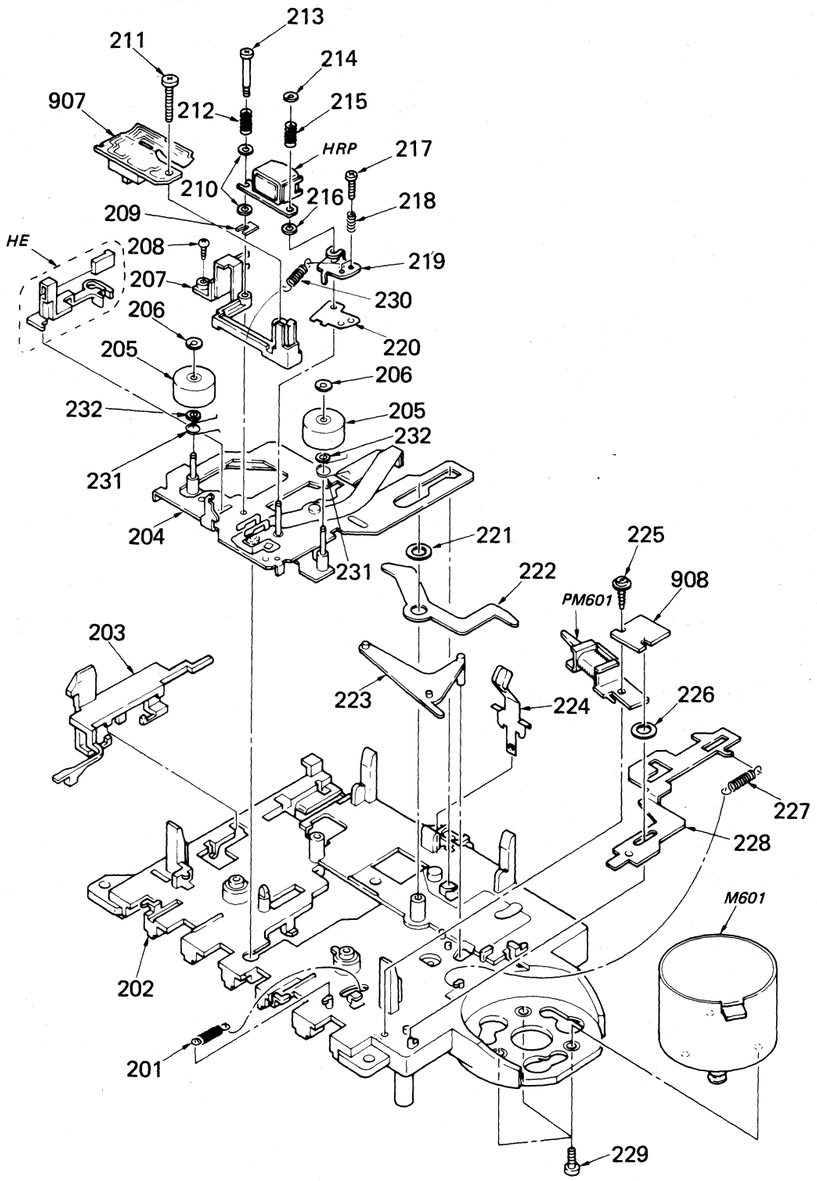
3-4.

No.	Part No.	Description	Remarks
101	*3-322-518-01	RETAINER, LEVER	
102	7-685-105-19	TPG +P 2X8, TYPE 2, NON-SLIT	
103	3-831-441-11	CUSHION (B)	
104	3-328-104-01	SPRING, TENSION(POWER TENSION)	
105	3-322-527-01	SPRING, TENSION	
106	3-328-106-01	SPRING, TENSION	
107	7-687-233-11	SCREW (+ PTPWH) (2.6X6)	
108	3-328-107-01	SPRING, TENSION	
109	3-328-103-01	SPRING, TENSION	
110	3-328-105-01	SPRING, TENSION	
111	3-545-715-00	WASHER	
112	3-530-260-00	SPRING, TENSION	
113	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
114	X-3322-502-1	CLAW ASSY, REEL	
115	3-701-437-41	WASHER	
116	3-307-948-01	WASHER, NYLON	
117	3-330-827-01	LEVER (B), GEAR LOCK	
118	X-3322-508-1	FLYWHEEL (N) ASSY	
119	3-701-437-01	WASHER	
120	X-3322-540-1	DETECTION BLOCK ASSY	
121	3-701-437-21	WASHER	
122	3-322-566-01	BEARING, PULLEY	
123	3-322-533-01	BELT	
124	3-642-544-XX	BELT, COUNTER	
125	3-322-524-01	SPRING	
126	*3-322-519-01	RETAINER, THRUST	
127	7-685-134-19	SCREW (+ PTPWH) (2.6X8)	
128	3-330-833-01	LEVER (C), OA	
129	3-322-672-01	WASHER, NYLON	
130	3-322-534-01	SPRING	
131	3-330-826-01	LEVER (D), OA	
132	3-322-508-01	GEAR, REEL	
133	3-701-437-51	WASHER	
	3-701-437-61	WASHER	
134	3-321-541-01	SPRING, COMPRESSION	
135	3-322-659-01	WASHER (A)	
136	3-322-556-01	GEAR, FR	
137	3-322-553-01	GEAR, CAM	
138	3-313-384-01	SPRING, TENSION	
139	3-322-511-01	CLAW, ERASING PROTECTION	
140	X-3322-547-1	FLYWHEEL (R) ASSY	
141	3-701-437-11	WASHER	
142	*3-333-762-01	SPACER	
143	3-325-698-01	RING, RETAINING	
906	*1-613-724-11	PC BOARD, LEAF SWITCH	



No.	Part No.	Description	Remarks
151	*3-322-587-01	PLATE (B), LOCK	
152	*3-322-588-01	PLATE (A), LOCK	
154	X-3322-509-1	LEVER (D) ASSY, S.OFF	
155	3-322-555-01	LEVER (E), S.OFF	
156	3-322-577-01	SPRING	
157	*3-322-517-01	LEVER, AMS	
158	*X-3322-505-1	LEVER ASSY, FR	
159	3-322-578-01	SPRING	
160	*3-330-829-11	LEVER (C), PAUSE BUTTON	
161	3-322-515-11	LEVER, REW BUTTON	
162	*3-322-585-11	LEVER, FF BUTTON	
163	3-322-693-01	SPRING, TENSION	
164	3-322-520-01	SPRING, TENSION	
165	*3-322-584-11	LEVER, PLAY BUTTON	
166	*3-322-591-11	LEVER, REC BUTTON	
167	*3-322-583-11	LEVER, STOP BUTTON	
168	3-328-102-01	SPRING, TENSION (POWER TENSION)	
169	3-322-575-01	SPRING	
170	3-322-554-01	ARM, REC LOCK	
171	*3-322-586-01	LEVER, DIRECTION	
172	3-322-513-01	COLLAR	
173	3-570-615-00	POLY-WASHER (DIA.1.2)	
174	3-322-550-01	GEAR (B), FWD	
175	3-322-509-01	GEAR (A), FWD	
176	3-322-576-01	SPRING	
177	*X-3322-504-1	ARM ASSY, FWD GEAR	
178	3-322-579-01	SPRING	
179	*3-322-589-01	LEVER, SWITCH	
180	3-322-689-01	RING	

3-5.



No.	Part No.	Description	Remarks
201	3-330-633-01	SPRING, TENSION	
202	A-3102-061-A	CHASSIS ASSY, MECHANICAL	
203	3-322-512-01	LEVER, EJECT	
204	X-3322-503-1	CHASSIS ASSY, HEAD	
205	3-703-597-41	PINCH ROLLER, STANDARD	
206	3-307-948-01	WASHER, NYLON	
207	3-322-510-01	GUIDE, EBF	
208	7-621-255-35	SCREW (2MMX5), + PWH	
209	3-573-466-01	SPACER, HEAD	
	3-573-466-11	SPACER, HEAD	
210	7-688-001-01	W 2, SMALL	
211	7-621-255-75	SCREW (M2X12), SMALL, (+ -)	
212	3-318-106-01	SPRING (H), COMPRESSION	
213	3-322-567-01	SCREW, PAN, STEP	
214	3-570-615-11	POLY-WASHER (DIA.1.2)	
215	3-579-759-00	SPRING, COMPRESSION	
216	3-701-437-21	WASHER	
217	7-627-851-27	SCREW, PRECISION +P 1.4X5	
218	3-322-531-01	SPRING, COMPRESSION	
219	3-322-592-01	LEVER, AZIMUTH	
220	3-322-593-01	PLATE, AZIMUTH	
221	3-701-443-11	WASHER	
222	*3-322-590-01	LEVER, DIRECTION RELEASE	
223	3-322-514-01	LINK (A)	
224	3-322-595-01	SPRING	
225	7-685-105-19	SCREW (2X8), + PTPWH	
226	3-701-437-01	WASHER	
227	3-328-101-01	SPRING, TENSION (POWER TENSION)	
228	*3-322-594-11	LEVER, MANUAL BUTTON	
229	7-621-259-35	SCREW +P 2.6X5	
230	3-322-520-01	SPRING, TENSION	
231	3-326-372-01	SPRING (C)	
232	3-330-642-01	WASHER, CLAMP	
907	1-614-798-11	PC BOARD, HEAD CHANGE SWITCH	
908	*1-602-735-00	PC BOARD, SOLENOID	
HE	A-3114-042-A	ARM ASSY, EBF	
HRP	1-543-334-11	HEAD, MAGNETIC (REC/PB)	
M601	A-3133-210-A	MOTOR ASSY	
PM601	1-454-355-00	SOLENOID, PLUNGER	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	*1-623-492-11	PC BOARD, LED			
902	*1-623-489-11	PC BOARD, BATTERY TERMINAL (A)			
903	*1-623-490-11	PC BOARD, BATTERY TERMINAL (B)			
904	*A-3260-631-A	MOUNTED PCB, MAIN			
905	*1-623-491-11	PC BOARD, DC JACK			
906	*1-613-724-11	PC BOARD, LEAF SWITCH			
907	1-614-798-11	PC BOARD, HEAD CHANGE SWITCH			
908	*1-602-735-00	PC BOARD, SOLENOID			
ANT1	1-501-338-11	ANTENNA, TELESCOPIC			
C1	1-162-294-31	CERAMIC	0.001MF	10%	50V
C2	1-162-195-31	CERAMIC	4.7PF	10%	50V
C3	1-102-959-00	CERAMIC	22PF	5%	50V
C4	1-161-379-00	CERAMIC	0.01MF	20%	16V
C5	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C6	1-161-379-00	CERAMIC	0.01MF	20%	16V
C7	1-102-960-00	CERAMIC	24PF	5%	50V
C8	1-162-203-31	CERAMIC	15PF	5%	50V
C10	1-162-282-31	CERAMIC	100PF	10%	50V
C12	1-162-294-31	CERAMIC	0.001MF	10%	50V
C13	1-162-199-31	CERAMIC	10PF	5%	50V
C19	1-161-055-00	CERAMIC	0.022MF	10%	25V
C20	1-161-055-00	CERAMIC	0.022MF	10%	25V
C21	1-161-055-00	CERAMIC	0.022MF	10%	25V
C22	1-124-446-11	ELECT	47MF	20%	10V
C26	1-102-949-00	CERAMIC	12PF	5%	50V
C27	1-162-217-31	CERAMIC	56PF	5%	50V
C28	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C29	1-162-199-31	CERAMIC	10PF	5%	50V
C30	1-103-740-00	POLYSTYRENE	0.0043MF	5%	50V
C31	1-102-959-00	CERAMIC	22PF	5%	50V
C32	1-104-067-00	POLYSTYRENE	390PF	5%	50V
C33	1-104-060-00	POLYSTYRENE	200PF	5%	50V
C34	1-103-711-00	POLYSTYRENE	270PF	5%	50V
C35	1-161-021-11	CERAMIC	0.047MF	10%	25V
C36	1-124-908-11	ELECT	22MF	20%	25V
C37	1-124-902-00	ELECT	0.47MF	20%	50V
C39	1-161-021-11	CERAMIC	0.047MF	10%	25V
C40	1-161-055-00	CERAMIC	0.022MF	10%	25V
C41	1-123-875-11	ELECT	10MF	20%	50V
C44	1-161-057-00	CERAMIC	0.033MF	10%	25V
C45	1-161-056-00	CERAMIC	0.027MF	10%	25V
C46	1-124-902-00	ELECT	0.47MF	20%	50V
C49	1-162-282-31	CERAMIC	100PF	10%	50V
C52	1-124-499-11	ELECT	1MF	20%	50V
C53	1-123-382-00	ELECT	3.3MF	20%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C54	1-130-471-00	FILM	0.001MF	5%	50V
C55	1-123-382-00	ELECT	3.3MF	20%	50V
C56	1-124-446-11	ELECT	47MF	20%	10V
C57	1-161-054-00	CERAMIC	0.018MF	10%	25V
C58	1-161-054-00	CERAMIC	0.018MF	10%	25V
C59	1-123-875-11	ELECT	10MF	20%	50V
C60	1-123-875-11	ELECT	10MF	20%	50V
C61	1-162-294-31	CERAMIC	0.001MF	10%	50V
C62	1-161-379-00	CERAMIC	0.01MF	20%	16V
C101	1-123-382-00	ELECT	3.3MF	20%	50V
C102	1-162-294-31	CERAMIC	0.001MF	10%	50V
C103	1-162-282-31	CERAMIC	100PF	10%	50V
C104	1-124-446-11	ELECT	47MF	20%	10V
C105	1-162-217-31	CERAMIC	56PF	5%	50V
C106	1-161-379-00	CERAMIC	0.01MF	20%	16V
C107	1-161-047-00	CERAMIC	0.0047MF	10%	25V
C108	1-123-875-11	ELECT	10MF	20%	50V
C109	1-124-499-11	ELECT	1MF	20%	50V
C110	1-161-042-00	CERAMIC	0.0018MF	10%	25V
C111	1-161-020-11	CERAMIC	0.039MF	10%	25V
C112	1-161-045-00	CERAMIC	0.0033MF	10%	25V
C113	1-124-446-11	ELECT	47MF	20%	10V
C114	1-124-443-00	ELECT	100MF	20%	10V
C115	1-136-172-00	FILM	0.39MF	5%	50V
C116	1-124-471-00	ELECT	1000MF	20%	6.3V
C201	1-123-382-00	ELECT	3.3MF	20%	50V
C202	1-162-294-31	CERAMIC	0.001MF	10%	50V
C203	1-162-282-31	CERAMIC	100PF	10%	50V
C204	1-124-446-11	ELECT	47MF	20%	10V
C205	1-162-217-31	CERAMIC	56PF	5%	50V
C206	1-161-379-00	CERAMIC	0.01MF	20%	16V
C207	1-161-047-00	CERAMIC	0.0047MF	10%	25V
C208	1-123-875-11	ELECT	10MF	20%	50V
C209	1-124-499-11	ELECT	1MF	20%	50V
C210	1-161-042-00	CERAMIC	0.0018MF	10%	25V
C211	1-161-020-11	CERAMIC	0.039MF	10%	25V
C212	1-161-045-00	CERAMIC	0.0033MF	10%	25V
C213	1-124-446-11	ELECT	47MF	20%	10V
C214	1-124-443-00	ELECT	100MF	20%	10V
C215	1-136-172-00	FILM	0.39MF	5%	50V
C216	1-124-471-00	ELECT	1000MF	20%	6.3V
C301	1-124-902-00	ELECT	0.47MF	20%	50V
C302	1-124-446-11	ELECT	47MF	20%	10V
C303	1-126-101-11	ELECT	100MF	20%	16V
C304	1-126-101-11	ELECT	100MF	20%	16V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C305	1-124-925-11	ELECT	2.2MF	20%	50V
C306	1-124-120-11	ELECT	220MF	20%	16V
C307	1-124-556-11	ELECT	2200MF	20%	16V
C308	1-161-055-00	CERAMIC	0.022MF	10%	25V
C310	1-130-482-00	MYLAR	0.0082MF	5%	50V
C311	1-162-294-31	CERAMIC	0.001MF	10%	50V
C312	1-124-446-11	ELECT	47MF	20%	10V
C313	1-161-013-00	CERAMIC	0.01MF	10%	25V
C314	1-124-444-00	ELECT	220MF	20%	10V
C315	1-161-013-00	CERAMIC	0.01MF	10%	25V
C316	1-162-294-31	CERAMIC	0.001MF	10%	50V
C317	1-124-464-11	ELECT	0.22MF	20%	50V
C330	1-161-057-00	CERAMIC	0.033MF	10%	25V
C331	1-161-020-11	CERAMIC	0.039MF	10%	25V
C332	1-130-772-00	FILM	0.22MF	10%	63V
C333	1-124-902-00	ELECT	0.47MF	20%	50V
C334	1-123-382-00	ELECT	3.3MF	20%	50V
C335	1-124-925-11	ELECT	2.2MF	20%	50V
C336	1-124-963-11	ELECT	33MF	20%	16V
CF1	1-567-802-71	FILTER, CERAMIC			
CF2	1-567-802-71	FILTER, CERAMIC			
CF3	1-567-670-11	FILTER, CERAMIC			
CN1	*1-564-508-11	PLUG, CONNECTOR 5P			
CN2	*1-564-506-11	PLUG, CONNECTOR 3P			
CN3	*1-564-508-11	PLUG, CONNECTOR 5P			
CN4	*1-564-507-11	PLUG, CONNECTOR 4P			
CP1	1-231-720-00	FILTER, BANDPASS			
CT5	1-141-290-11	CAP, VAR FILM TRIMMER			
CT6	1-141-260-00	TRIMAR, CERAMIC			
CT7	1-141-290-11	CAP, VAR FILM TRIMMER			
CT8	1-141-245-00	TRIMMER, CERAMIC			
CV1	1-151-387-00	CAP, TUNING, POLYETHYLENE (Including CT1-4)			
CV2	1-141-328-11	CAP, TRIMMER			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			
D4	8-719-768-75	DIODE 1S2687CS			
D301	8-719-100-38	DIODE RD6.2EB2			
D302	8-719-911-19	DIODE 1SS119			
D303	8-719-812-41	DIODE TLR124			
D304	8-719-812-41	DIODE TLR124			
D305	8-719-812-41	DIODE TLR124			
HE	A-3114-042-A	ARM ASSY, EBF			
HRP	1-543-334-11	HEAD, MAGNETIC (REC/PB)			
IC1	8-759-204-03	IC TA7358AP			
IC2	8-759-801-24	IC LA1260S			
IC3	8-759-203-87	IC TA7343AP			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
IC301	8-759-205-91	IC TA7668BP			
IC302	8-759-205-82	IC TA7282AP			
IC303	8-759-800-71	IC LA2010			
J301	1-562-837-11	JACK (PHONES)			
J302	1-507-954-11	JACK, EXTERNAL POWER (DC IN 9V)			
L1	*1-422-126-21	COIL, AIR-CORE (FM RF)			
L2	1-459-694-31	COIL (WITH CORE)(FM OSC)			
L5	*1-409-293-00	COIL, AIR CORE			
L8	1-402-262-41	COIL (WITH CORE)(SW ANT)			
L9	1-402-314-11	ANTENNA, FERRITE-ROD (LW/MW)			
L10	1-406-152-11	COIL, OSCILLATION (SW)			
L11	1-406-059-00	COIL, OSCILLATION (MW)			
L12	1-406-151-11	COIL, OSCILLATION (LW)			
L101	1-407-484-00	MICRO INDUCTOR 3.3UH			
L201	1-407-484-00	MICRO INDUCTOR 3.3UH			
M601	A-3133-210-A	MOTOR ASSY			
MIC301	8-814-186-00	MICROPHONE UNIT (C-1014)			
PM601	1-454-355-00	SOLENOIDE			
Q101	8-729-600-27	TRANSISTOR 2SC634SP			
Q201	8-729-600-27	TRANSISTOR 2SC634SP			
Q301	8-729-600-27	TRANSISTOR 2SC634SP			
Q302	8-729-173-36	TRANSISTOR 2SA733-Q			
Q303	8-729-281-53	TRANSISTOR 2SC1815-GR			
Q304	8-729-100-12	TRANSISTOR 2SC2001-L			
R1	1-249-417-11	CARBON	1K	5%	1/6W
R2	1-249-405-11	CARBON	100	5%	1/6W
R3	1-249-395-11	CARBON	15	5%	1/6W
R4	1-249-399-11	CARBON	33	5%	1/6W
R5	1-249-405-11	CARBON	100	5%	1/6W
R6	1-249-414-11	CARBON	560	5%	1/6W
R7	1-249-441-11	CARBON	100K	5%	1/6W
R8	1-249-441-11	CARBON	100K	5%	1/6W
R15	1-247-849-00	CARBON	5.6K	5%	1/6W
R16	1-249-441-11	CARBON	100K	5%	1/6W
R21	1-249-433-11	CARBON	22K	5%	1/6W
R22	1-249-421-11	CARBON	2.2K	5%	1/6W
R23	1-249-405-11	CARBON	100	5%	1/6W
R51	1-249-417-11	CARBON	1K	5%	1/6W
R52	1-249-429-11	CARBON	10K	5%	1/6W
R53	1-215-477-00	CARBON	220K	5%	1/6W
R54	1-249-422-11	CARBON	2.7K	5%	1/6W
R55	1-249-423-11	CARBON	3.3K	5%	1/6W
R56	1-249-423-11	CARBON	3.3K	5%	1/6W
R57	1-249-437-11	CARBON	47K	5%	1/6W
R58	1-249-437-11	CARBON	47K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R59	1-249-439-11	CARBON	68K	5%	1/6W
R60	1-249-439-11	CARBON	68K	5%	1/6W
R61	1-249-402-11	CARBON	56	5%	1/6W
R62	1-249-410-11	CARBON	270	5%	1/6W
R63	1-249-410-11	CARBON	270	5%	1/6W
R101	1-249-421-11	CARBON	2.2K	5%	1/6W
R102	1-249-407-11	CARBON	150	5%	1/6W
R103	1-249-435-11	CARBON	33K	5%	1/6W
R104	1-249-421-11	CARBON	2.2K	5%	1/6W
R105	1-249-406-11	CARBON	120	5%	1/6W
R106	1-249-432-11	CARBON	18K	5%	1/6W
R107	1-249-425-11	CARBON	4.7K	5%	1/6W
R108	1-249-417-11	CARBON	1K	5%	1/6W
R109	1-249-417-11	CARBON	1K	5%	1/6W
R110	1-249-404-00	CARBON	82	5%	1/6W
R111	1-249-403-11	CARBON	68	5%	1/6W
R130	1-249-423-11	CARBON	3.3K	5%	1/6W
R131	1-249-438-11	CARBON	56K	5%	1/6W
R201	1-249-421-11	CARBON	2.2K	5%	1/6W
R202	1-249-407-11	CARBON	150	5%	1/6W
R203	1-249-435-11	CARBON	33K	5%	1/6W
R204	1-249-421-11	CARBON	2.2K	5%	1/6W
R205	1-249-406-11	CARBON	120	5%	1/6W
R206	1-249-432-11	CARBON	18K	5%	1/6W
R207	1-249-425-11	CARBON	4.7K	5%	1/6W
R208	1-249-417-11	CARBON	1K	5%	1' W
R209	1-249-417-11	CARBON	1K	5%	1/6W
R210	1-249-404-00	CARBON	82	5%	1/6W
R211	1-249-403-11	CARBON	68	5%	1/6W
R230	1-249-423-11	CARBON	3.3K	5%	1/6W
R231	1-249-438-11	CARBON	56K	5%	1/6W
R301	1-249-411-11	CARBON	330	5%	1/6W
R302	1-249-417-11	CARBON	1K	5%	1/6W
R303	1-249-427-11	CARBON	6.8K	5%	1/6W
R304	1-249-420-11	CARBON	1.8K	5%	1/6W
R305	1-249-429-11	CARBON	10K	5%	1/6W
R306	1-249-402-11	CARBON	56	5%	1/6W
R307	1-249-437-11	CARBON	47K	5%	1/6W
R308	1-249-393-11	CARBON	10	5%	1/6W
R309	1-249-406-11	CARBON	120	5%	1/6W
R310	1-249-417-11	CARBON	1K	5%	1/6W
R311	1-249-425-11	CARBON	4.7K	5%	1/6W
R312	1-249-399-11	CARBON	33	5%	1/6W
R313	1-249-411-11	CARBON	330	5%	1/6W
R314	1-249-417-11	CARBON	1K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R315	1-249-405-11	CARBON	100	5%	1/6W
R316	1-249-413-11	CARBON	470	5%	1/6W
R317	1-249-417-11	CARBON	1K	5%	1/6W
R318	1-249-416-11	CARBON	820	5%	1/6W
R330	1-249-417-11	CARBON	1K	5%	1/6W
R331	1-249-417-11	CARBON	1K	5%	1/6W
R332	1-215-481-00	CARBON	330K	5%	1/6W
R333	1-249-405-11	CARBON	100	5%	1/6W
R334	1-249-441-11	CARBON	100K	5%	1/6W
R335	1-249-407-11	CARBON	150	5%	1/6W
R336	1-249-417-11	CARBON	1K	5%	1/6W
R337	1-249-420-11	CARBON	1.8K	5%	1/6W
R338	1-249-420-11	CARBON	1.8K	5%	1/6W
RV1	1-228-993-00	RES, ADJ, CARBON 5K			
RV301	1-237-567-11	RES, VAR, CARBON 20K/20K (TONE)			
RV302	1-230-454-11	RES, VAR, CARBON 20K/20K (VOLUME)			
S1	1-554-885-11	SWITCH, LEVER SLIDE (BAND)			
S301	1-570-931-11	SWITCH, SLIDE (REC/PB)			
S302	1-571-078-11	SWITCH, LEVER SLIDE (FUNCTION)			
S303	1-554-491-00	SWITCH, PUSH (1 KEY)(REC MUTE)			
S304	1-554-123-00	SWITCH, SLIDE (ISS/FM MODE)			
S501	1-570-018-11	SWITCH, SLIDE (DIR)			
S601	1-570-013-11	SWITCH, LEAF (MD POWER)			
S602	1-570-012-11	SWITCH, LEAF (AMS)			
SP301	1-503-823-11	SPEAKER			
SP302	1-503-823-11	SPEAKER			
T1	1-403-872-00	I.F.T, FM CONVERTER (SMALL TYPE)			
T2	1-404-249-00	COIL, FM DETECTOR			
T3	1-404-355-00	TRANSFORMER, IF			
T301	1-433-268-00	TRANSFORMER, BIAS OSCILLATOR			

ACCESSORY & PACKING MATERIAL

Part No.	Description
⚠1-463-700-12	(UK).....ADAPTOR, AC (AC-930A)
⚠1-463-903-11	(AEP,G-AEP)...ADAPTOR, AC (AC-930B)
3-340-754-01	SHEET, PROTECTION
3-340-755-01	CUSHION (LEFT)
3-340-756-01	CUSHION (RIGHT)
3-340-762-01	INDIVIDUAL CARTON
3-769-052-11	MANUAL, INSTRUCTION
3-769-052-41	(AEP,G-AEP)...MANUAL, INSTRUCTION

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.